

U.S. Patent Application No. 10/071,841
Amendment dated September 27, 2004
Reply to Office Action of July 9, 2004

REMARKS/ARGUMENTS

Reconsideration and continued examination of the above-identified application are respectfully requested.

The amendment to the claims further defines what applicants regard as their invention and/or is editorial in nature. By way of this amendment, claims 1, 13-17, and 20 have been amended. New claims 27-39 have been added. Support for the amendment can be found throughout the present application, including the claims as originally filed, for instance, at pages 4, 5, 6, 7, and 9 of the present application. Furthermore, the examples further support the amendments. New claim 27 is a combination of original claims 1 and 7, which were objected to. New claim 28 is a combination of original claims 1 and 12, which were objected to. Accordingly, no questions of new matter should arise and entry of this amendment is respectfully requested.

At page 2 of the Office Action, the Examiner asserts that the title of the invention is not descriptive and requests that a new title be provided. For the following reasons, this request is respectfully traversed.

The applicants believe that the original title was descriptive. However, to assist the Examiner, a new title has been introduced.

Also at page 2 of the Office Action, the Examiner rejects claims 1, 2, 13, 17, and 20 under 35 U.S.C. §112, second paragraph, as being indefinite. The Examiner asserts that several terms are not clear in the claims. For the following reasons, this rejection is respectfully traversed.

The applicants believe that claims 1, 2, 13, 17, and 20 were quite clear to one skilled in the art. To assist the Examiner, claims 1, 13, 17, and 20 have been amended. The amendments with respect to the Examiner's comments set forth in the §112 rejection do not alter the scope of the claims. The applicants believe that the claims as pending address each of the Examiner's concerns.

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Accordingly, this rejection should be withdrawn.

At the bottom of page 3 of the Office Action, the Examiner rejects claims 1, 2, 5, 6, 9-11, 14, and 15 under 35 U.S.C. §103(a) as being unpatentable over Hollitt et al. (U.S. Patent No. 5,411,719). The Examiner asserts that Hollitt et al. shows a process of recovering a metal oxide by magnetic separation of iron impurities from a slurry containing the same and adding citric acid to the slurry and then leaching or dissolving the iron from the slurry and separating the titania therefrom. The Examiner refers specifically to the figure and several claims of Hollitt et al. For the following reasons, this rejection is respectfully traversed.

Hollitt et al. relates to a method for producing acid soluble titania which involves heating a titaniferous mineral which contains iron in the presence of a reductant at a high temperature in order to permit the iron to be reduced to its metallic form. Afterwards, the product is cooled. As recited in claim 22 of Hollitt et al., the product of step (iii) can then be subjected to magnetic separation wherein the non-magnetic fraction is extracted as product and the magnetic fraction then proceeds to step (iv). Thus, it is important for the Examiner to appreciate that in the process of Hollitt et al., the magnetic fraction is then subjected to a chemical treatment such as with citric acid as recited in claims 16 and 18 of Hollitt et al. The non-magnetic fraction is not treated with any citric acid. This is quite different from the claimed invention, which separates out a magnetic fraction in step (a) of claim 1 and then leaches or dissolves the remaining magnetic impurities along with the non-magnetic materials such as the metal and/or oxide to be recovered. Claim 1 specifically recites that the slurry after step (a) has at least a portion of remaining magnetic impurities and metal and/or oxide thereof that is not magnetically separable at below 2,000 gauss. Thus, this is the slurry that gets leached or dissolved, for instance, with an acid that is treated with at least one chelating agent. This is quite different from Hollitt et al., which treats the pure magnetic fraction and does not at all

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treat any non-magnetic fraction. Accordingly, the process of Hollitt et al. is different from claim 1 and the claims dependent thereon. Furthermore, claims 14 and 15 recite that the metal is tantalum or niobium or an oxide thereof. Accordingly, for the these reasons, this rejection should be withdrawn.

At page 4 of the Office Action, the Examiner then rejects claims 14-26 under 35 U.S.C. §103(a) as being unpatentable over Burghardt et al. (an article entitled "A Contribution to the Beneficiation of a Tantalum/Niobium Ore from China"). The Examiner asserts that Burghardt et al. shows a metal oxide, such as Ta_2O_5 , in tailings containing the same. For the following reasons, this rejection is respectfully traversed.

The sections referred to by the Examiner in the Burghardt et al. reference do recite tailings which contain tantalum oxide, but it is respectfully noted that the particle size of the tailings, as well as the tantalum oxide, is well above 100 microns. For instance, the particle size in Figure 4 of this article shows particles of greater than .3 mm, which would be 300 microns. It is respectfully noted that the process set forth in the present application permits one to obtain tailings which contain a very low level of tantalum and/or oxides thereof. As explained in the background of the present application, once ore is reduced to small aggregates and subjected to recovery processes, when the tantalum and/or oxide thereof is reduced to a very small particle size, the separation of the tantalum and/or oxide thereof by separation techniques does not work, and the tantalum and/or oxide thereof is simply discarded as tailings and therefore remain unrecoverable, which is a significant economic loss to the mining operations. Furthermore, flotation techniques for the recovery of fine sized fractions of metals and/or oxides thereof, such as tantalum and/or oxides thereof, has generally been unsuccessful. As can be seen from the Burghardt et al. reference, this reference primarily relates to larger particle sizes, wherein recovery is much easier. It is respectfully noted that when particle

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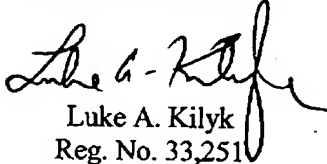
sizes are below 100 microns, Burghardt et al. is completely silent with respect to the recovery of tantalum from tailings. Accordingly, Burghardt et al. clearly does not teach or suggest the tailings as recited in the claims of the present application, which have low levels of tantalum and/or oxides thereof. For these reasons, this rejection should be withdrawn as well.

CONCLUSION

In view of the foregoing remarks, the applicant respectfully requests the reconsideration of this application and the timely allowance of the pending claims.

If there are any other fees due in connection with the filing of this response, please charge the fees to Deposit Account No. 03-0060. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such extension is requested and should also be charged to said Deposit Account.

Respectfully submitted,


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